

Solar Working Group

Solar Sub-Group Updates

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Value of Solar

- VOS Examples
 - Austin Energy
 - Minnesota PUC
 - 5 Lakes Energy



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Austin Energy 2014 VOS Buy All – Sell All

	Economic Value (\$/kWh)	Load Match (No Losses) (%)	Distributed Loss Savings (%)	Distributed PV Value (\$/kWh)
Guaranteed Fuel Value	\$0.053		4%	\$0.055
Plant O&M Value	\$0.005		4%	\$0.005
Gen. Capacity Value	\$0.026	62%	6%	\$0.017
Avoided Trans. Capacity Cost	\$0.015	62%	6%	\$0.010
Avoided Dist. Capacity Cost	\$0.000	39%	7%	\$0.000
Avoided Environmental Cost	\$0.020		0%	\$0.020
	<u>\$0.119</u>			<u>\$0.107</u>

Previous VOS was between 12 and 13 cents per kWh.



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Minnesota PUC

Example VOS

Buy All – Sell All

Figure 3. (EXAMPLE) VOS Levelized Calculation Chart (Required).

25 Year Levelized Value	Gross Starting Value (\$/kWh)	×	Load Match Factor (%)	×	(1 + Loss Savings Factor (%))	=	Distributed PV Value (\$/kWh)
Avoided Fuel Cost	\$0.061				8%		\$0.066
Avoided Plant O&M - Fixed	\$0.003		40%		9%		\$0.001
Avoided Plant O&M - Variable	\$0.001				8%		\$0.001
Avoided Gen Capacity Cost	\$0.048		40%		9%		\$0.021
Avoided Reserve Capacity Cost	\$0.007		40%		9%		\$0.003
Avoided Trans. Capacity Cost	\$0.018		40%		9%		\$0.008
Avoided Dist. Capacity Cost	\$0.008		30%		5%		\$0.003
Avoided Environmental Cost	\$0.029				8%		\$0.031
Avoided Voltage Control Cost							
Solar Integration Cost							
							<hr/> \$0.135



5 Lakes Energy

- Bill Credit
- Dynamic Rate to Value Power
- Buy-net, Sell-net One-way Delivery Charge
- Renewable Energy Credits
- Externality Payments



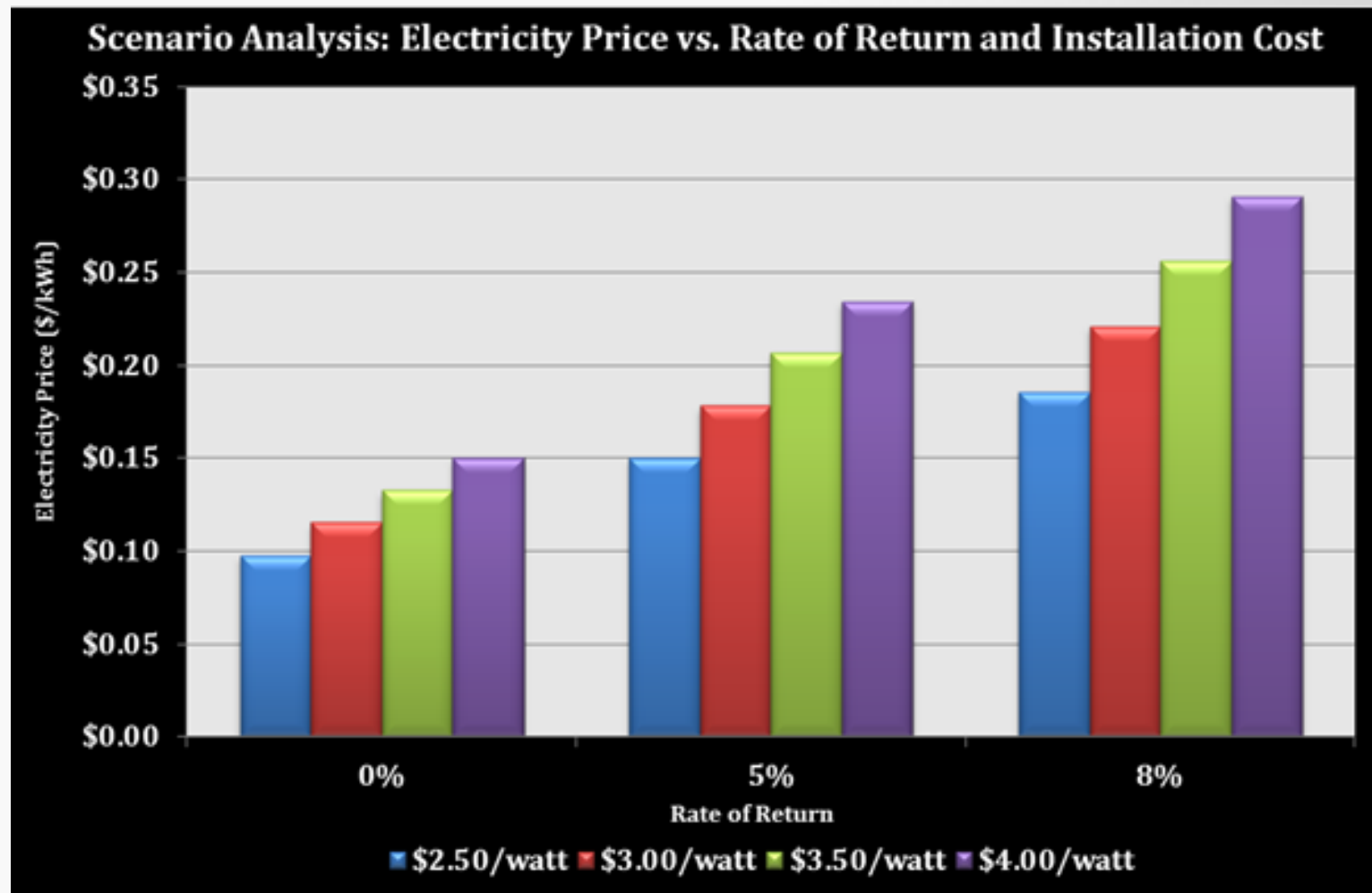
Value of Solar

Contested Case Proceeding

- Utility Value of Solar filing
 - PSCR (annual filing)
 - RE Plan (every 2 years or when plan is amended)
- VOS consultant to assist MPSC Staff
- Complex VOS study with 25 – 30 year forecasted LMPs and capacity data



Residential Solar Model



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Next Steps (from last time)

- Program Caps
- Analyzing impact of various program sizes on PSCR, Base Rates, or Renewable Energy Surcharge



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One possible program design

- Blocks of capacity with declining price schedule
- Blocks fill on “first-come, first-served” basis
- Could be structured as rebate or PBI “sweetener” to existing net metering program.

	1	2	3	4	5
Small < 20 kW	X MW \$0.0X	X MW \$0.0X	X MW \$0.0X	X MW \$0.0X	X MW \$0.0X
Large 20-500 kW	X MW \$0.0X	X MW \$0.0X	X MW \$0.0X	X MW \$0.0X	X MW \$0.0X

One Scenario – Part 1

Block	1	2	3	4	5
VOS in cents/kWh	10	10	10	10	10
REC price in \$/MWh (floor)	10	5	4	3	2
RECs in cents/kWh	3.14	1.57	1.256	0.942	0.628
Total payment in cents/kWh	13.14	11.57	11.256	10.942	10.628

Assumes 3.14 multiplier for on-peak solar
Propose REC price be fixed through 2029



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One Scenario – Part 2

Small <20kW					
Block size in MW	2.5	2.5	2.5	2.5	2.5
Potential customers	>125	>125	>125	>125	>125
Large 20-500kW					
Block size in MW	7.5	7.5	7.5	7.5	7.5
Potential customers	15-375	15-375	15-375	15-375	15-375

Total size of 50MW for each utility



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Recovery for this Scenario

- Total \$104 Million (through 2029)
 - Assumes all blocks full and delivering 1/1/2015
- Using current transfer price methodology
 - \$38 million Act 295, \$66 million PSCR
- RECs through Act 295, VOS through PSCR
 - \$14 million Act 295, \$90 million PSCR



Program Design

Recent Tasks:

- Community Company-Owned Program Economics
- Third Party Model
- Community Solar Program Details



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Program Design

- Community Company-Owned Program Economics
 - Model under review
- Third Party Model
 - MN and CO models



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Program Design

Locational Requirements

- Should there be a proximity requirement
 - Utility's service area
 - County/City
 - Certain perimeter, i.e. 10 mile radius, 20 mile radius, etc.

Consensus

- **Utilities service area**



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Program Design

Customer Share Requirements/Limits

- Maximum size limits
 - Limit each customer to net metering rules
 - Should each customer be allowed to subscribe at 110% or 120% to cover entire bill
 - Limit percentage of the program subscription any one customer can own/lease
 - Should there be a maximum third-party project size?
- Minimum requirements
- Should there be a minimum size for each subscription
- Should there be a minimum third party project size?

Consensus

- **Net metering Limits OK, exceeding this would be great**
- **40% max ownership**
- **1 kW or one panel minimum**
- **Let the market determine the third party size**



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Program Design

Customer Contract Term Requirements

- Should customers be allowed to enter and exit at any time?
- Should customers be required to sign long term contracts?

Consensus

- **Should be some minimum time frame and at least a year contract for administrative efficiency**



Program Design

Build Requirements

- Postpone build until subscription queue reaches a certain point?
- What point should this be?

Consensus

- **80-100% for Utility-owned and for third party projects they can determine the necessary pre-subscription and risk.**



Program Design

Utility Payments

- What should utilities pay for community solar?
 - Value of Solar
 - RFP offerings?

Consensus

- ?



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